

REMARKS

Careful consideration has been given by the applicants to the Examiner's comments and rejection of the claims, as set forth in the outstanding Office Action, and favorable reconsideration and allowance of the application, as amended, is earnestly solicited.

With regard to Paragraph 1 of the Office Action, wherein the Examiner indicates that a certified copy of the German application has not been submitted, applicants respectfully submit that the Examiner is in error, inasmuch as the present application is based on a PCT application and is essentially a U.S. designated case filed under 35 U.S.C. §371. Consequently, the required certified copy of the German application has been duly submitted in the PCT application, which constitutes the basis of the present application, and accordingly, no further certified copy is required herein.

Applicants further note the Examiner's claim objections in that Claims 6, 7, 11 and 16 are objected to under 37 C.F.R. §1.75(c), as being improperly multiple dependent, and that this particular objection also pertains to Claims 13, 14 and 15.

Accordingly, the claims, as pending herein, have been amended in that regard, so as to provide appropriate dependencies in conformance with the U.S. claim drafting practice, thereby rendering moot any formal matters in that regard.

Applicants further note the rejection of Claims 1-5 under 35 U.S.C. §102(b) as being anticipated by Belli, et al., U.S. Patent No. 5,147,521, as cited by the present applicants in the Information Disclosure Statement (IDS), filed concurrently with the subject application; and wherein the Examiner discusses this publication in further detail in the Office Action.

However, as also previously indicated by applicants, a review of the prior art clearly indicates that the closest publication, which was cited during the examination of the parent PCT application from which the present application is based, and as also submitted in the IDS submitted upon the

filing of this application, is International Patent Publication No. WO 02/20866 A1, based on Japanese PCT Application PCT/JP01/07710, a copy of which the applicants have already submitted an English language Abstract.

Reverting to the present claims, in order to clearly and unambiguously distinguish over the art, applicants have cancelled Claims 11, 12 and 15 without prejudice or disclaimer, and incorporated the limitations thereof into Claim 1, setting forth these particular structural and functional limitations in a clear and precise manner.

Hereby, applicants note that the Belli, et al. publication, U.S. Patent No. 5,147,521, does not provide for the thermal conductivity and the electrical conductivity of the clamps in combination with the compressibility and/or resilience.

These are elements which were more specifically set forth in Claims 11, 12 and 15, and which have now been incorporated into Claim 1, thereby clearly and unambiguously distinguishing over Belli, et al.

However, further consideration of the prior art, as cited in the IDS and considered in the PCT application, which is closer to the inventive concept than the Belli, et al. publication, is the International Application No. WO 02/20866 A1, wherein, presently the claims, as amended, also patentably distinguish thereover, and wherein arguments as utilized in conjunction therewith, are equally applicable to the Belli, et al. U.S. patent.

In particular, applicants note the following distinctions over International Application No. WO 02/20866 A1, as well as over the Belli, et al. U.S. patent as follows:

International Application No. WO 02/20866A1 (PCT/JP01/07710), which the applicants consider as the closest state-of-the-art, discloses a quick change sputter target assembly, which is directed to a sputter source of the type having a quick change target from which material is sputtered.

This known structure sets forth a sputtering having inner and outer annular walls, where the inner wall has locking means extending radially outwardly from the inner annular wall. An annular alignment ring is adapted for a slidable arrangement over the inner annular wall with the annular alignment ring having a plurality of discrete spring plunger means disposed in a radial array around the ring. Hereby, the annular alignment ring has an outer peripheral surface that is spaced from an inner peripheral surface of the outer annular wall, thereby providing an annular gap therebetween. A removable annularly shaped target has a smaller annular wall adapted for insertion within the annular gap, with the target being retained in position in the sputtering gun by the plurality of discrete spring plunger means. However, a disadvantage of this prior art arrangement resides in that when sputtering electrical charges and upon heat developing the retaining means are only poorly able to discharge the electric charges and dissipate the heat, because of the geometrical form of the spring plunger means.

Thus, a spring has a relative small cross-section, whereby its resistivity is high, because the resistivity of a body with the length L and a cross-section A is given $R_{elec} = \rho \cdot \frac{L}{A}$, wherein ρ is the specific resistivity of the body, whereby the higher the resistance the more electrical charges can flow off. This is similar during thermal conduction, i.e., the smaller the cross-section of conductor and the lengthier the conductor, the higher is the thermal resistance. $R_{elec} = \rho \cdot \frac{L}{A}$,

Even if the material of the plunger springs possesses only a low specific resistivity ρ , the spring evidences a relatively high resistivity, because of its geometrical form.

Hereby, the present invention, as claimed, solves a problem in constructing a target support assembly with holder structure, which incorporates an improved heat conductivity and/or electrical conductivity. These advantages are clearly discussed in the present specification and also set forth in

the calms, and wherein the solution to the problem that is encountered in both prior art publications, resides in the following:

The solution of the problem in providing a target support assembly which has clamping elements (6), wherein the clamping elements (6) are, in each case, made of an elastically deformable and/or compressible material and/or wherein the clamping elements (6) are made of synthetic material and in that particles or fibers of electrically and/or thermally conductive material are embedded in the material of the clamping elements (6) and/or wherein the clamping elements (6) have in each case, at least on their inner side, a convexly rounded cross-sectional form and the base of the recess is preferably rounded correspondingly.

Consequently, an important advantage of the application according to the present invention, resides in that the clamping elements (6) have a bigger contact area A than does a ball of a plunger spring, because the element (6) are elastic and/or compressible and/or their inner sides have a convexly rounded cross-sectional shape while the base of the recess if preferably rounded in a corresponding manner; referring to Fig. 6 and Fig. 7 elucidated in the description of the present invention.

Thus, electrically/thermally conductivity of the clamping elements (6) is higher than the electrically/thermally conductivity of a ball, because of formula $R_{\text{elec}} = \rho \cdot \frac{L}{A}$ and. ir $R_{\text{elec}} = \infty \cdot \frac{L}{A}$.

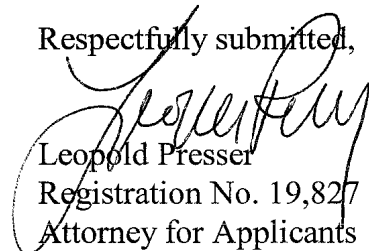
Moreover, the electrical/thermal resistance is reduced due to the electrically/thermally conducting particles that are present in the clamping elements (6), whereby the clamping elements (6) divert surplus electric charges and/or surplus thermally energy better than can a plunger spring. The WO 02/20866 A1 publication does not disclose that the spring plungers are heat-conductive and/or electro-conductive, or that the ball is elastic or compressible.

Furthermore, another advantage of the present inventive clamping element (6) resides in that they do not corrode, because the material thereof is synthetic in structure.

In summation, applicants respectfully submit that the particular construction and function of the clamping elements and remaining components for the target are clearly emphasized in the claims, as amended, and supported in the specification and patentably distinguish over the art, irrespective as to whether the latter is considered singly or in combination.

Accordingly, in view of the foregoing comments and amendments, the early and favorable reconsideration of the application and allowance thereof by the Examiner and issuance of the Notice of Allowance is earnestly solicited. However, in the event that the Examiner has any queries concerning the instantly submitted Amendment, applicants' attorney respectfully requests that he be accorded the courtesy of possibly a telephone conference to discuss any matters in need of attention.

Respectfully submitted,



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